

Please insert on page 1, line 3 the following heading:

A1 BACKGROUND OF THE INVENTION

Please replace the paragraph beginning on page 1, line 8 with the following rewritten paragraph:

A2 A plasma display device is a flat panel display capable of displaying color images by generating ultraviolet light through high-voltage gas discharge, and lighting fluorescent agents of various colors painted to each pixel within the panel.

Please replace the paragraph beginning at page 1, line 19 with the following rewritten paragraph:

A3 However, according to the conventional plasma display devices, a beautiful image is provided only when viewed in a dark room. The image provided by the plasma display is not bright enough to be viewed at a bright place, for example, outdoors.

Please replace the paragraph beginning at page 1, line 12 with the following rewritten paragraph:

A4 High voltage is impressed to electrodes 12 and 14 of the plasma display device formed as explained above, and gas discharge is performed within the discharge space 20 filled with neon gas including argon. Ultraviolet light is generated in each discharge space 20, and causes the fluorescent 17 of the corresponding pixel to glow.

Please replace the paragraph beginning at page 2, line 18 with the following rewritten paragraph:

AB One cause of insufficient brightness of the plasma display device is that not all of the visible radiation from the fluorescent caused by the ultraviolet light generated by the gas discharge is radiated toward the display surface or front glass 12. Visible radiation is also radiated toward the back surface glass 11 and the side surfaces (separation walls 15), and perpendicular members (such as glass) absorb the visible radiation.

Please replace the paragraph beginning at page 3, line 5 with the following rewritten paragraph:

AB Moreover, many electronics 3 are mounted to the back surface of the display module 10. The heat generated from the display module 10 heats the electronics 3, causing problems.

Please replace the paragraph beginning at page 3, line 8 with the following rewritten paragraph:

AM This is because the gas discharge and the fluorescent of the display module 10 generates electromagnetic wave energy having various wavelengths, such as ultraviolet, visible radiation, heat wavelength energy and radio wavelength energy. The white-colored dielectric layer 18 mounted to the back surface of the module improves the luminance of the display by reflecting the visible radiation (electromagnetic wave having a wavelength of 0.38 - 0.78 micron) generated from the fluorescent. However, the white dielectric layer does not reflect electromagnetic wave

A7  
cancel  
energy having a long wavelength (0.78 – 100 micron) classified as heat wave energy, or radio wave energy (electromagnetic wave energy having a wavelength of 100 micron or greater).

---

Please replace the paragraph beginning at page 3, ~~line 20~~ with the following rewritten paragraph:

---

A8  
Even further, the electromagnetic wave energy that has not been reflected by the dielectric layer is absorbed by the fluorescent, the white-colored dielectric layer 18 formed on the back surface, and the back surface glass plate 11 of the display module 10, and there, the electromagnetic wave energy is converted into heat energy. The heat energy causes the temperature of the back surface portion of the display module 10 to increase.

---

Please replace the paragraph beginning at page 4, ~~line 6~~ with the following rewritten paragraph:

---

A9  
The present invention provides a plasma display device having improved luminosity and bright image quality with low power consumption, and with reduced electromagnetic wave energy radiated toward the back surface of the display module equipped with electronics converting into heat energy.

---

Please replace the paragraph beginning at page 4, ~~line 11~~ with the following rewritten paragraph:

---

A10  
The plasma display device according to the present invention comprises a display module

*Ap  
Concl*  
equipped with an array of luminescent pixels, and electronics connected to the back surface of the display module wherein the front surface of the display module is a display surface, and the surface of the luminescent pixels opposite said display surface is a reflection surface.

---

Please replace the paragraph beginning at page 5, line ~~21~~ with the following rewritten paragraph:

---

*A<sup>11</sup>*  
According to the present invention, the shape of the discharge spaces (luminescent pixels) are changed, and reflection surfaces formed by metal plating and the like are provided to the areas that are expected to reflect the electromagnetic wave. Thereby, any electromagnetic wave energy regardless of its wavelength can be reflected toward the front direction of the pixel to improve the brightness of the display, and to minimize the radiation of energy toward the back surface of the module.

---

Please replace the paragraph beginning at page 6, line ~~6~~ with the following rewritten paragraph:

---

FIG. 1 is an explanatory cross-sectional view showing the structure of a display module of the plasma display device according to the present invention;

*A<sup>12</sup>*  
FIG. 2 is a perspective view of a display module of the plasma display device according to the present invention;

FIG. 3 is an explanatory cross-sectional view showing another embodiment of the display module;

FIG. 4 is an explanatory cross-sectional view showing another embodiment of the display module;

FIG. 5 is an explanatory view of the structure of a plasma display device of the prior art;

FIG. 6 is an explanatory view of the structure of a display module according to the prior art; and

FIG. 7 is an explanatory view of luminescent pixels.

---

Please replace the paragraph beginning at page 7, line 10 with the following rewritten paragraph:

---

Metal plating treatment is provided to the surface of the dielectric layer 62 covering the back glass plate 60 and the surface of the separation wall 70, thereby forming a reflection surface 80. Further, a fluorescent agent is applied to the reflection surface 80 to form a fluorescent layer 85. In other words, the reflection surface 80 and the fluorescent layer 85 are provided to all inner surfaces of each discharge space 110 except for the display surface near the front glass plate 50.

---

Please replace the paragraph beginning at page 7, line 18 with the following rewritten paragraph:

---

According to the display module 100 formed as explained above, high voltage impressed to the electrodes 120 and electrodes 130 causes discharge to occur within each discharge space 110, and generates ultraviolet light. Ultraviolet light impinges upon the fluorescent surface 85. The ultraviolet light is reflected by the reflection surface 80, and the reflected ultraviolet light is

radiated toward the front glass plate 50 having no reflection surface (in the direction of the display surface).

---

Please replace the paragraph beginning at page 9, line 3 with the following rewritten paragraph:

---

*A15*  
Moreover, the metal-plated reflection surface 80 not only reflects visible light and ultraviolet, but also reflects all electromagnetic wave energy regardless of its wavelength. Visible light energy, electromagnetic wave energy with a long wavelength, and radio wave energy are all reflected by the reflection surface 80, and will not be absorbed by the back surface glass plate 60. As a result, no energy causing a temperature rise will reach the electronics equipped to the back surface of the module.

---

Please replace the paragraph beginning at page 9, line 22 with the following rewritten paragraph:

---

*A16*  
In the present embodiment, the dielectric layer 620 covering the back surface glass plate 60 comprises a concave surface 625 positioned at the center of each discharge space. Sandblasting is applied to the concave surface 625 to form a concave mirror-like surface. Thereafter, metal plating is applied to the concave surface 625 to form a reflection surface 800. Then, a fluorescent agent is applied on the surface of the metal-plated reflection surface 800, forming the fluorescent layer 850.

---

Please replace the paragraph beginning at page 10, line 5 with the following rewritten paragraph:

A17  
The display module 200 according to the present embodiment is characterized in that the visible light generated by the fluorescent layer 850 is all reflected by the reflection surface 800 having a concave surface, and the light is collected toward the front surface glass plate 50 functioning as the display surface. Therefore, the surface luminance of the display module 200 is improved greatly. Moreover, because the reflection surface 800 having a concave surface reflects all electromagnetic wave energy regardless of its wavelength, so the back surface glass plate 60 will absorb no electromagnetic wave. As a result, the electromagnetic wave energy will not heat the electronics mounted to the back surface glass plate 60.

Please replace the paragraph beginning at page 11, line 5 with the following rewritten paragraph:

A18  
The display module 300 reflects light by a front surface 60a of the back surface glass plate 60. The light transmitted through the back surface glass plate 60 is reflected by the reflection surface 870 toward the display surface or front surface glass plate 50. A portion of the electromagnetic wave energy absorbed by the back surface glass plate 60 may turn into energy and cause the temperature of the back surface 60b of the back surface glass plate 60 to rise. However, since most of the electromagnetic wave energy absorbed is reflected by the reflection surface 870, the temperature rise is limited to a low level. Even further, the module of the present embodiment has a simple structure, and has high reflection efficiency.

Please replace the paragraph beginning at page 11, line 17 with the following rewritten paragraph:

A19  
As explained, the display module according to the present embodiment reflects all of the visible light generated by the fluorescent body by the reflection mirror toward the display surface, and improves the luminance of the display surface greatly. Even further, because the reflection surface of the module reflects all electromagnetic wave energy regardless of its wavelength, the temperature of the electronics mounted to the back surface of the module is prevented from rising.

Please replace the paragraph beginning at page 11, line 25 with the following rewritten paragraph:

A20  
The present invention provides a display module of a plasma display device that solves the problem of heat diffusion of electronics mounted to the back surface of the module, with improved surface luminance, and with a display surface that is bright and provides good image quality, without increasing consumption power.

**IN THE CLAIMS:**

Cancel claim 1.

Please amend claims 2-6 as follows:



2. (Amended) A plasma display device comprising a display module, said display module having electronics mounted to the back surface thereof and utilizing the front surface thereof as a display surface, said display module further comprising:

a back surface glass plate having discharge electrodes;

a front surface glass plate that is mounted on and opposing to said back surface glass plate via separation walls and having discharge electrodes; and

luminescent pixels defined by said back surface glass plate, said separation walls and said front surface glass plate,

wherein said luminescent pixels are formed so that at least the surface of said back surface glass plate opposite and facing said display surface is a reflection surface.

A21  
3. (Amended) The plasma display device according to claim 2, wherein said luminescent pixels of said display module are formed so that all surfaces defining said pixels other than the surface of said front surface glass plate are reflection surfaces.

4. (Amended) The plasma display device according to claim 2, wherein said reflection surface is formed by metal plating.

5. (Amended) The plasma display device according to claim 2, wherein said reflection surface is formed by adhering metal leafs.

U.S. Patent Application Serial No. 09/671,742

6. (Amended) The plasma device according to claim 2, wherein the reflection surface opposite said display surface has a concave surface, and the light reflected from said reflection surface is condensed at the display surface.

---